

AMENDMENTS TO THE CLAIMS

Claim 1-42 (Canceled)

Claim 43 (Currently Amended): A material for purification of a semiconductor polishing slurry to remove metals present in an acidic semiconductor polishing slurry used in a semiconductor polishing process, comprising:

a hydroxyl group;

a functional group capable of ion-exchanging ~~with a hydroxyl group~~ or capable of forming a metal chelate, ~~which enables~~ the functional group being configured to maintain a main constituent of the acidic semiconductor polishing slurry; and

a fibrous substrate of which at least the surface is fixed onto by the functional group, wherein the hydroxyl group is an ethylenical hydroxyl group;

wherein the functional group capable of forming a metal chelate is at least one group selected from a group containing aminocarboxylic acids, a group containing phosphoric acids, a group containing thio compounds and at least a part of acid type functional groups of these groups determined as an acid type (H type); and

wherein the fibrous substrate is at least one selected from a plant-based natural fiber, an animal-based natural fiber, a cellulose-based regenerated fiber, a polyvinyl alcohol-based synthetic polymer fiber, polyethylene imine-based synthetic polymer fiber, polyester-based synthetic polymer fiber, polyvinyl chloride-based synthetic polymer fiber, polyacrylonitrile-based synthetic polymer fiber, polyamide-based synthetic polymer fiber and polyolefin-based synthetic polymer fiber.

Claim 44 (Currently Amended): A material for purification of a semiconductor polishing slurry to remove metals present in a basic semiconductor polishing slurry used in a semiconductor polishing process, comprising:

a hydroxyl group;

a functional group capable of ion-exchanging ~~with a hydroxyl group~~ or capable of forming a metal chelate, ~~which enables~~ the functional group being configured to maintain a main constituent of the basic semiconductor polishing slurry; and

a fibrous substrate of which at least the surface is fixed onto by the functional group, wherein the hydroxyl group is an ethylenical hydroxyl group;

wherein the functional group capable of forming a metal chelate is at least one group selected from a group containing aminocarboxylic acids, a group containing phosphoric acids, a group containing thio compounds and at least a part of acid type functional groups of these groups determined as alkali metal salt or ammonium salt; and

wherein the fibrous substrate is at least one selected from a plant-based natural fiber, an animal-based natural fiber, a cellulose-based regenerated fiber, a polyvinyl alcohol-based synthetic polymer fiber, polyethylene imine-based synthetic polymer fiber, polyester-based synthetic polymer fiber, polyvinyl chloride-based synthetic polymer fiber, polyacrylonitrile-based synthetic polymer fiber, polyamide-based synthetic polymer fiber and polyolefin-based synthetic polymer fiber.

Claim 45 (Currently Amended): A process for purification of a semiconductor polishing slurry used in a semiconductor polishing process, comprising:

passing an object semiconductor polishing slurry through at least one material for purification of a semiconductor polishing slurry to remove metals present in the semiconductor polishing slurry, the at least one material comprising a hydroxyl group; a functional group capable of ion-exchanging ~~with a hydroxyl group~~ or capable of forming a metal chelate, ~~which enables~~ the functional group being configured to maintain a main constituent of the semiconductor polishing slurry; and a fibrous substrate of which at least the surface is fixed onto by the functional group ~~[[,]]~~ to remove metals present in the object semiconductor polishing slurry; and then

after removing the metals present in the object semiconductor polishing slurry, supplying all of the object semiconductor polishing slurry to a step of polishing a semiconductor after removing the metals present in it; or

after introducing at least a part or all of ~~the object semiconductor polishing slurry~~ it to ~~an~~ the original semiconductor polishing slurry and circulating ~~the introduced slurry through the at least one material again to remove metals again~~, supplying ~~the circulated slurry~~ any of them to the step of polishing ~~[[a]]~~ semiconductor.

Claim 46 (Previously Presented): A process for purification of a semiconductor polishing slurry according to claim 45,

wherein the functional group capable of forming a metal chelate is at least one group selected from a group containing aminocarboxylic acids, a group containing phosphoric acids, a group containing thio compounds, a group containing amines and a group containing hydroxylamines.

Claim 47 (Currently Amended): A process for purification of a semiconductor polishing slurry used in a semiconductor polishing process, comprising:

passing an object semiconductor polishing slurry through at least one material for purification of a semiconductor polishing slurry to remove metals present in the semiconductor polishing slurry, the at least one material comprising a hydroxyl group; a functional group capable of ion-exchanging ~~with a hydroxyl group~~ or capable of forming a metal chelate, ~~which enables~~ the functional group being configured to maintain a main constituent of the semiconductor polishing slurry; and a fibrous substrate of which at least the surface is fixed onto by the functional group, where the hydroxyl group is an ethylenical hydroxyl group; ~~where~~ wherein the functional group capable of forming a metal chelate is at least one group selected from a group containing aminocarboxylic acids, a group containing phosphoric acids and a group containing thio compounds ; ~~and where~~ , wherein the fibrous substrate is at least one selected from a plant-based natural fiber, an animal-based natural fiber, a cellulose-based regenerated fiber, a polyvinyl alcohol-based synthetic polymer fiber, polyethylene imine-based synthetic polymer fiber, polyester-based synthetic polymer fiber, polyvinyl chloride-based synthetic polymer fiber, polyacrylonitrile-based synthetic polymer fiber, polyamide-based synthetic polymer fiber and polyolefin-based synthetic polymer fiber, to remove metals present in the object semiconductor polishing slurry; ~~and then~~

after removing the metals present in the object semiconductor polishing slurry, supplying all of the object semiconductor polishing slurry to a step of polishing a semiconductor after removing the metals present in it; or

after introducing at least a part or all of ~~the object semiconductor polishing slurry~~ it to an ~~the~~ original semiconductor polishing slurry and circulating ~~the introduced slurry through~~ the at least one material again to remove metals again, supplying ~~the circulated slurry~~ any of them to the step of polishing [[a]] semiconductor.

Claim 48 (Currently Amended): A process for purification of a semiconductor polishing slurry ~~according to claim 45, wherein the at least one material is two or more materials that have different substrates and/or functional groups and that are laminated to form a layer or mixed~~ comprising,

passing an object semiconductor polishing slurry through two or more of the materials for purification of the semiconductor polishing slurry having at least one of a different substrate and a different functional group among the materials for purification of a semiconductor polishing slurry according to claim 43 being laminated to form a layer or mixed to remove metals present in the object semiconductor polishing slurry;

supplying all of the object semiconductor polishing slurry to a step of polishing a semiconductor after removing the metals present in it; or

after introducing at least a part or all of it to the original semiconductor polishing slurry and circulating again, supplying any of them to the step of polishing semiconductor.

Claim 49 (Currently Amended): A process for purification of a semiconductor polishing slurry ~~according to claim 47, wherein the at least one material is two or more materials that have different substrates and/or functional groups and that are laminated to form a layer or mixed~~ comprising,

passing an object semiconductor polishing slurry through two or more of the materials for purification of the semiconductor polishing slurry having at least one of a different substrate and a different functional group among the materials for purification of a semiconductor polishing slurry according to claim 44 being laminated to form a layer or mixed to remove metals present in the object semiconductor polishing slurry;

supplying all of the object semiconductor polishing slurry to a step of polishing a semiconductor after removing the metals present in it; or

after introducing at least a part or all of it to the original semiconductor polishing slurry and circulating again, supplying any of them to the step of polishing semiconductor.

Claim 50 (Currently Amended): A process for purification of a semiconductor polishing slurry ~~according to claim 45, wherein the at least one material is formed into a self-supportable sheet or felt~~ comprising,

passing an object semiconductor polishing slurry through the material for purification of a semiconductor polishing slurry according to claim 43 being formed into a self-supportable sheet or felt to remove metals present in the object semiconductor polishing slurry;

supplying all of the object semiconductor polishing slurry to a step of polishing a semiconductor after removing the metals present in it; or

after introducing at least a part or all of it to the original semiconductor polishing slurry and circulating again, supplying any of them to the step of polishing semiconductor.

Claim 51 (Currently Amended): A process for purification of a semiconductor polishing slurry ~~according to claim 47 wherein the at least one material is formed into a self-supportable sheet or felt~~ comprising,

passing an object semiconductor polishing slurry through the material for purification of a semiconductor polishing slurry according to claim 44 being formed into a self-supportable sheet or felt to remove metals present in the object semiconductor polishing slurry;

supplying all of the object semiconductor polishing slurry to a step of polishing a semiconductor after removing the metals present in it; or

after introducing at least a part or all of it to the original semiconductor polishing slurry and circulating again, supplying any of them to the step of polishing semiconductor.

Claim 52 (Currently Amended): A process for purification of a semiconductor polishing slurry ~~according to claim 45, wherein the at least one material is charged in a container provided with an inflow port and an outflow port for the object semiconductor polishing slurry so as to allow the object semiconductor polishing slurry to flow through the container comprising,~~

passing an object semiconductor polishing slurry through the material for purification of a semiconductor polishing slurry according to claim 43 being charged in a container provided with an inflow port and an outflow port for the polishing slurry so as to allow the polishing slurry to flow through it, to remove metals present in the object semiconductor polishing slurry;

supplying all of the object semiconductor polishing slurry to a step of polishing a semiconductor after removing the metals present in it; or

after introducing at least a part or all of it to the original semiconductor polishing slurry and circulating again, supplying any of them to the step of polishing semiconductor.



Claim 53 (Currently Amended): A process for purification of a semiconductor polishing slurry ~~according to claim 47, wherein the at least one material is charged in a container provided with an inflow port and an outflow port for the object semiconductor polishing slurry so as to allow the object semiconductor polishing slurry to flow through the container comprising,~~

passing an object semiconductor polishing slurry through the material for purification of a semiconductor polishing slurry according to claim 44 being charged in a container provided with an inflow port and an outflow port for the polishing slurry so as to allow the polishing slurry to flow through it, to remove metals present in the object semiconductor polishing slurry;

supplying all of the object semiconductor polishing slurry to a step of polishing a semiconductor after removing the metals present in it; or

after introducing at least a part or all of it to the original semiconductor polishing slurry and circulating again, supplying any of them to the step of polishing semiconductor.

Claim 54 (Currently Amended): A process for purification of a semiconductor polishing slurry according to ~~claim 45~~, wherein the ~~at least one material is disposed in a flowable state within an area partitioned by a filter or a strainer through which the object semiconductor polishing slurry flows in a container provided with an inflow port and an outflow port for the object semiconductor polishing slurry comprising,~~

passing an object semiconductor polishing slurry through the material for purification of a semiconductor polishing slurry according to claim 43 being disposed in a flowable state within an area partitioned by a filter or a strainer through which the polishing slurry flows in a container provided with an inflow port and an outflow port for the semiconductor polishing slurry to remove metals present in the object semiconductor polishing slurry;

supplying all of the object semiconductor polishing slurry to a step of polishing a semiconductor after removing the metals present in it; or

after introducing at least a part or all of it to the original semiconductor polishing slurry and circulating again, supplying any of them to the step of polishing semiconductor.

Claim 55 (Currently Amended): A process for purification of a semiconductor polishing slurry ~~according to claim 47, wherein the at least one material is disposed in a flowable state within an area partitioned by a filter or a strainer through which the object semiconductor polishing slurry flows in a container provided with an inflow port and an outflow port for the object semiconductor polishing slurry comprising,~~

passing an object semiconductor polishing slurry through the material for purification of a semiconductor polishing slurry according to claim 44 being disposed in a flowable state within an area partitioned by a filter or a strainer through which the polishing slurry flows in a container provided with an inflow port and an outflow port for the semiconductor polishing slurry to remove metals present in the object semiconductor polishing slurry;

supplying all of the object semiconductor polishing slurry to a step of polishing a semiconductor after removing the metals present in it; or

after introducing at least a part or all of it to the original semiconductor polishing slurry and circulating again, supplying any of them to the step of polishing semiconductor.

Claim 56 (Currently Amended): A process for purification of a semiconductor polishing slurry according to claim 45,

~~wherein the object~~ when a semiconductor polishing slurry being purified is acidic, and an acid type end group of the a functional group capable of forming a metal chelate is determined as an acid type (H type) ; or , and

when the object semiconductor polishing slurry being purified is alkaline, and an acid type end group of the a functional group capable of forming a metal chelate is determined as an alkali metal salt or ammonium salt, and the object semiconductor polishing slurry is passed through the material for purification of a semiconductor polishing slurry to remove metals present in the object semiconductor polishing slurry.

Claim 57 (Currently Amended): A process for purification of a semiconductor polishing slurry according to claim 47,

wherein ~~the object~~ when a semiconductor polishing slurry being purified is acidic, ~~and~~ an acid type end group of ~~the~~ a functional group capable of forming a metal chelate is determined as an acid type (H type) ; or , and

when the object semiconductor polishing slurry being purified is alkaline, ~~and~~ an acid type end group of ~~the~~ a functional group capable of forming a metal chelate is determined as an alkali metal salt or ammonium salt, and the object semiconductor polishing slurry is passed through the material for purification of a semiconductor polishing slurry to remove metals present in the object semiconductor polishing slurry.

Claim 58 (Currently Amended): A process for purification of a semiconductor polishing slurry according to claim 45,

wherein when the object semiconductor polishing slurry is alkaline, ~~and an~~ the acid type end group of the functional group capable of forming ~~[[a]]~~ the metal chelate is determined as alkali metal salt or ammonium salt which is a main component showing alkalinity of the object semiconductor polishing slurry.

Claim 59 (Currently Amended): A process for purification of a semiconductor polishing slurry according to claim 47,

wherein when the object semiconductor polishing slurry is alkaline, ~~and an~~ the acid type end group of the functional group capable of forming ~~[[a]]~~ the metal chelate is determined as alkali metal salt or ammonium salt which is a main component showing alkalinity of the object semiconductor polishing slurry.